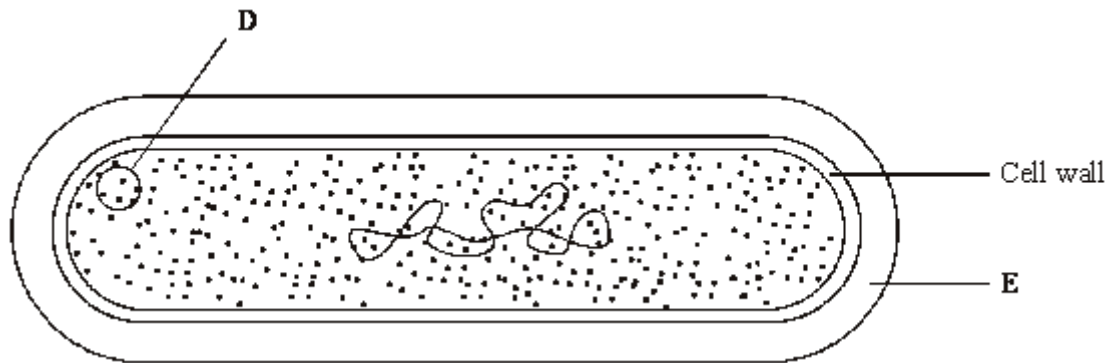


AQA Questions on 1.2 Cell Structure (answers are at the end)

Q1. (a) The diagram shows a bacterial cell.



(i) Name the parts labelled **D** and **E**.

D

E

(2)

(ii) Give **one** function of the cell wall.

.....

.....

(1)

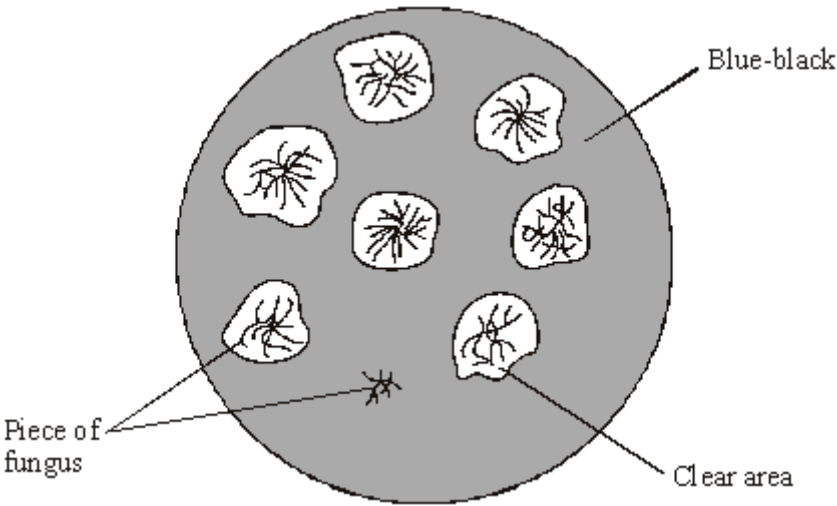
(b) Name **two** structures present in eukaryotic cells that are not present in the cells of prokaryotes.

1

2

(2)

(c) Several small pieces of a saprophytic fungus were placed on a starch agar plate. After 48 hours the iodine solution was poured over the starch agar. The result is shown in the diagram below.



(i) Explain why there is a clear area around most of the pieces of fungus.

.....

.....

.....

.....

(2)

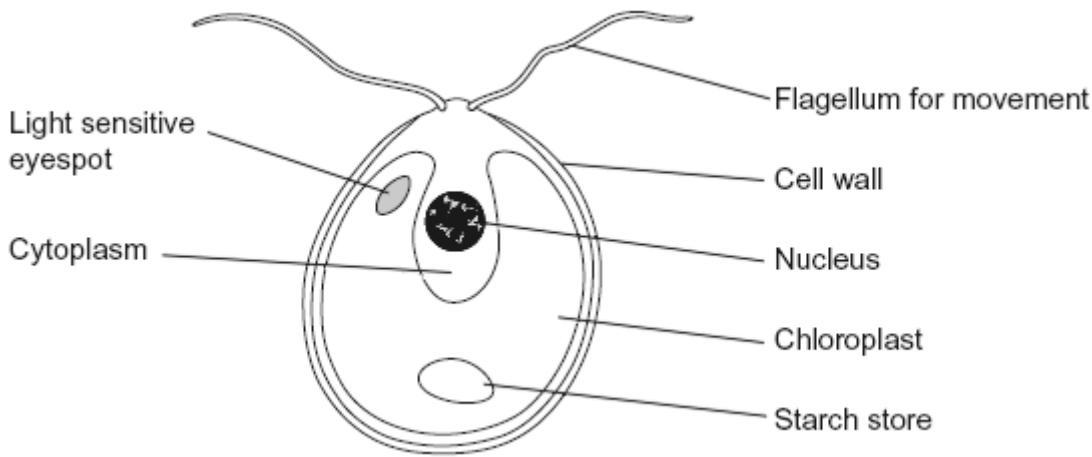
(ii) Suggest why one piece of fungus has no clear area round it.

.....

.....

(1)
(Total 8 marks)

Q2. The diagram shows an organism called *Chlamydomonas*.



(a) Name **two** structures shown in the diagram that are present in plant cells but are **not** present in animal cells.

1

.....

2

.....

(2)

(b) *Chlamydomonas* lives in fresh water ponds. Use your knowledge of osmosis to suggest an advantage of using starch as a carbohydrate store.

.....

.....

.....

.....

.....

(2)

(c) *Chlamydomonas* has adaptations that help it to maintain a high rate of photosynthesis. Use information in the diagram to explain what these adaptations are.

.....

.....

.....

.....

.....

(Extra space)

.....

.....

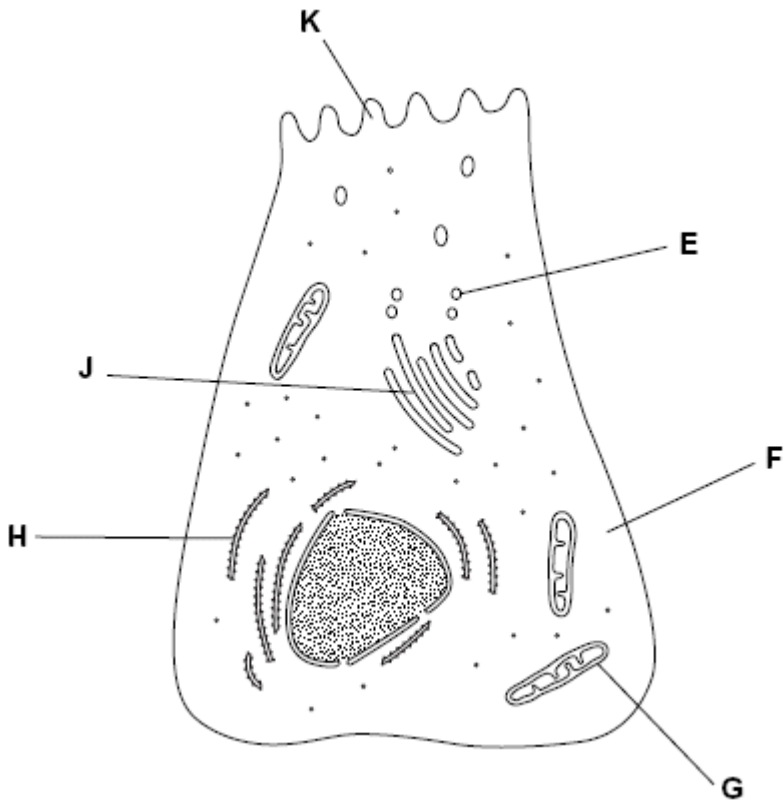
(3)
(Total 7 marks)

Q3. (a) Name the type of bond that joins amino acids together in a polypeptide.

.....

(1)

The diagram shows a cell from the pancreas.



- (b) The cytoplasm at **F** contains amino acids. These amino acids are used to make proteins which are secreted from the cell.

Place the appropriate letters in the correct order to show the passage of an amino acid from the cytoplasm at **F** until it is secreted from the cell as a protein at **K**.

F				K
----------	--	--	--	----------

(2)

- (c) There are lots of organelle **G** in this cell. Explain why.

.....

.....

.....

.....

(2)

- (d) A group of scientists homogenised pancreatic tissue before carrying out cell fractionation to isolate organelle **G**.

Explain why the scientists

- (i) homogenised the tissue

.....

.....

(1)

- (ii) filtered the resulting suspension

.....

.....

(1)

- (iii) kept the suspension ice cold during the process

.....

.....

(1)

(iv) used isotonic solution during the process.

.....

.....

.....

.....

(2)
(Total 10 marks)

- M1.** (a) (i) **D** plasmid / ribosome(s) / cytoplasm / storage granules;
(*accept any sensible structure*)
- E** (slime / mucous) capsule
- OR**
- slime / mucous layer; 2
- (ii) protection / maintain shape / prevent lysis / strength / support; 1
- (b) two of the following:
nucleus;
- OR**
- nuclear envelope / mitochondria / chloroplasts / sER / rER /
golgi apparatus / 80s ribosomes
- linear DNA / chromosomes / lysosomes / vacuole / vescicles /
cellulose cell wall; 2 max
- (c) (i) starch digested / broken down;
by amylase / carbohydrase; 2
- (ii) any sensible suggestion e.g. no secretion of amylase /
functional amylase /
piece of fungus might have died;
(*accept carbohydrase / enzyme for amylase*)
(*reject "no digestion" without qualification*) 1
- [8]**

- M2.** (a) Cell wall;
- Starch (store);
- Chloroplast;

*Accept: phonetic spelling***2 max**

- (b) Insoluble;

Reduces/'stops' water entry/osmosis / does not affect water potential / is osmotically inactive;

Accept: description for first point e.g. 'does not dissolve'.

2

- (c) Light sensitive eyespot / eyespot detects light;

Flagellum enables movement towards light;

Chloroplast/chlorophyll absorbs light/ for photosynthesis;

Do not penalise references to 'many chloroplasts'.

3

[7]

- M3.** (a) Peptide;

Q Do not accept polypeptide

Neutral: covalent

1

- (b) (F) H J E (K);

All three boxes correct = 2 marks

Two boxes correct = 1 mark

2

- (c) (Site of aerobic) respiration;

Release ATP / energy;

Active transport/transport against the concentration gradient/protein synthesis / exocytosis;

Q Reject: anaerobic respiration

Q Reject: produces/makes energy

Accept: produces ATP for energy

Reject: produces ATP for respiration

Neutral: protein secretion

2 max

- (d) (i) Breaks open cells/disrupts cell membrane/releases cell contents/releases organelles/break up cells;

Reject: breaks down cell wall

Neutral: separates the cells

Reject: breaks up cells so they can be separated

Reject: breaks up/separates organelles

1

- (ii) Removes (cell) debris/complete cells/tissue;

Neutral: to isolate organelle G/mitochondria

Neutral: removes unwanted substances/impurities

Reject: removes organelles/cell walls

1

- (iii) Reduces/prevents enzyme activity;

Reject: ref. to denaturation

1

- (iv) Prevents osmosis/no (net) movement of water/water does not enter organelle/water does not leave organelle;

So organelle/named organelle is not damaged/does not burst/does not shrivel;

Neutral: ref. to water potential

Q *Ref. to cells rather than organelles negates the second mark only*

Reject: ref. to turgid/flaccid for second mark

Reject: organelle 'explodes' for second mark

2

[10]